

## CLAIMS

What is claimed is:

1. A method for data-flow protection of an optical interface in data communication equipment, comprising the steps of:

(1) receiving optical-signal carried data-flow from a source-neighboring device;

(2) duplicating the optical-signal into at least two duplicated optical-signals: a first duplicated optical-signal and a second duplicated optical-signal, and sending the first duplicated optical-signal to a protected device for processing;

(3) according to working status of the protected device, selecting one from the second duplicated optical-signal and output optical-signal of the protected device, and sending the selected one to a destination-neighboring device.

2. The method according to Claim 1, wherein if working status of the protected device in step (3) is normal, then selecting optical-signal output of the protected device and sending to the destination-neighboring device; if the protected device working status in step (3) isn't normal, then selecting the second duplicated optical-signal and sending to the destination-neighboring device.

3. The method according to Claim 1, wherein between step (2) and step (3) further comprising:

re-duplicating the output optical-signal of the protected device into at least two re-duplicated optical-signals;

detecting whether an optical power of one of the two re-duplicated optical-signals is lower than a preset threshold value;

if yes, selecting directly the second duplicated optical-signal to send to the destination-neighboring device, and ending; and

otherwise, selecting another re-duplicated optical-signal as the output of the protected device, and executing step (3).

4. A data-flow protection device of an optical interface in data communication equipment, comprises a first optical-signal duplicating unit and an optical-signal selecting unit;

wherein the input of the first optical-signal duplicating unit is connected to a source-neighboring device for receiving an optical-signal, one of the first optical-signal duplicating unit output is connected to one of the optical-signal selecting unit input, another output of the first optical-signal duplicating unit connects to input of a protected device;

wherein another input of the optical-signal selecting unit is connected to optical-signal data-flow output of the protected device, the control end of the optical-signal selecting unit is connected with working status signal output of the

protected device, the output of the optical-signal selecting unit connects to a destination-neighboring device.

5. The data-flow protection device according to Claim 4, further comprises a second optical-signal duplicating unit, an optical power detecting module and a logic module;

wherein the optical-signal data-flow output of the protected device is connected to the second optical-signal duplicating unit input, one of the second optical-signal duplicating unit output connects to the optical-signal selecting unit, another output of the second optical-signal duplicating unit connects to the input of the optical power detecting module;

wherein inputs of the logic module are connected to working status signal output of the protected device and output of the optical power detecting module, respectively, and the output of the logic module connects to the control end of the optical-signal selecting unit.

6. The data-flow protection device according to Claim 5, wherein the optical power detecting unit comprises an optical-electrical conversion diode, an operational amplifier and an analog comparator;

wherein the optical-electrical conversion diode receives optical-signal outputted by the second optical-signal duplicating unit, converts the optical-signal to an electrical signal and output the electrical signal to the operational amplifier;

the analog comparator receives the amplified electrical signal from the operational amplifier, compares with a preset threshold value, outputs a control signal to one of the logic module control input.

7. The data-flow protection device according to Claim 4, wherein the optical-signal duplication unit is an optical splitter, and the optical-signal selecting unit is an optical switch.